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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,143	12/11/2003	Teruyoshi Washizawa	CFA00040US	3510

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CANON U.S.A. INC. INTELLECTUAL PROPERTY DIVISION  
15975 ALTON PARKWAY  
IRVINE, CA 92618-3731

EXAMINER
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PHAN, THAI Q

ART UNIT	PAPER NUMBER
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2128

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/735,143

Applicant(s)

WASHIZAWA ET AL.

Examiner

Thai Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13 is/are allowed.
- 6) ☒ Claim(s) 14-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This Office Action is in response to patent application S/N: 10/735,143, filed on 12/11/2003. Claims 1- 25 are pending in the action.

#### ***Drawings***

The drawings filed on 12/11/2003 are acceptable for consideration.

#### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 14- 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al, US patent no. 6,148,274.

As per claim 14, Watanabe anticipates a method and system for searching an optimal solution and adjusting the solution to meet optimization process with feature limitation very identical to the claimed invention. According to Watanabe, the method includes steps and means:

first solution determining step for solving an optimization problem of a first evaluation function for a state variable vector with a design variable vector being as a parameter (col. 5, lines 60-65, col. 6, lines 3-18, for example) ; and

second solution determining step for solving an optimization problem of a second evaluation function for the design variable vector and the state variable vector obtained in the first solution determining means, wherein the second solution determining means includes design variable vector updating means for updating the design variable vector in sequence, the design variable vector updating means including: minimum point searching means for making search from a start point to obtain a minimum point; and terminal point evaluating means for deciding an optimum point based on a value of the second evaluation function at the minimum point and a value of the second evaluation function at an end point (col. 6, lines 9-18, col. 7, lines 7-17, cols. 8-14, col. 22, line 27 to col. 23, line 44).

As per claims 15 and 16, Watanabe anticipates minimum point search for global search.

As per claim 17, Watanabe anticipates a method and system for searching an optimal solution and adjusting the solution to meet optimization process with feature limitation very identical to the claimed invention. According to Watanabe, the method includes steps and means:

first solution determining means for solving an optimization problem of a first evaluation function for a state variable vector with a design variable vector being as a parameter (col. 5, lines 60-65, col. 6, lines 3-18, for example) ; and

second solution determining means for solving an optimization problem of a second evaluation function for the design variable vector and the state variable vector obtained in the first solution determining means, wherein the second solution determining means includes design variable vector updating means for updating the design variable vector in sequence, the design variable vector updating means including: minimum point searching means for making search from a start point to obtain a minimum point; and terminal point evaluating means for deciding an optimum point based on a value of the second evaluation function at the minimum point and a value of the second evaluation function at an end point (col. 6, lines 9-18, col. 7, lines 7-17, cols. 8-14, col. 22, line 27 to col. 23, line 44).

As per claim 18, Watanabe anticipates a computerized method and program product including instruction codes for searching an optimal solution and adjusting the solution to meet optimization process with feature limitation very identical to the claimed invention. According to Watanabe, the method includes steps and means:

first solution determining means for solving an optimization problem of a first evaluation function for a state variable vector with a design variable vector being as a parameter (col. 5, lines 60-65, col. 6, lines 3-18, for example) ; and

second solution determining means for solving an optimization problem of a second evaluation function for the design variable vector and the state variable vector obtained in the first solution determining means, wherein the second solution determining means includes design variable vector updating means for updating the

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design variable vector in sequence, the design variable vector updating means including: minimum point searching means for making search from a start point to obtain a minimum point; and terminal point evaluating means for deciding an optimum point based on a value of the second evaluation function at the minimum point and a value of the second evaluation function at an end point (col. 6, lines 9-18, col. 7, lines 7-17, cols. 8-14, col. 22, line 27 to col. 23, line 44).

Similarly, claims 19-25 are directed to method and system with feature limitations similar to the rejected claims above. Claims 19-25 are also rejected in like manner.

#### ***Allowable Subject Matter***

Claims 1-13 are allowed. The following is a statement of reasons for the indication of allowable subject matter: the claimed invention is directed to a computer to perform an optimum design method comprising a first solution determining step of solving an optimization problem of a first evaluation function for a state variable vector with a design variable vector being as a parameter; and a second solution determining step of solving an optimization problem of a second evaluation function for the design variable vector and the state variable vector obtained in the first solution determining step, wherein the second solution determining step includes a gradient vector computing step of computing a gradient vector of the second evaluation function for the design variable vector; a first coefficient computing step of computing a first coefficient based on a value of a norm of the gradient vector; a search vector computing step of

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computing a search vector based on the first coefficient; a second coefficient computing step of computing a second coefficient; and a design variable vector updating step of updating the design variable vector based on the second coefficient, the second coefficient computing step including the first solution determining step, the first solution determining step being executed as an iterative method based on the gradient vector, and the state variable vector being not initialized during iteration.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  1. US patent no. 4,982,438, issued to Usami et al, on Jan. 1991
  2. US patent no. 5,195,026, issued to Nonaka et al, on Mar. 1993
  3. US patent no. 5,295,228, issued to Koda et al, on Mar. 1994
  4. US patent no. 5,513,098, issued to Spall et al, on Apr. 1996
  5. US patent application publication no. 2002/0057838, issued to Steger, Carsten, on May 2002
  6. US patent application publication no. 2002/0183987, issued to Chiang, Hsiao-Dong, on Dec. 2002
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Phan whose telephone number is 571-272-3783.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mar. 27, 2007

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